Stimulating endogenous muscle stem cells to counter muscle atrophy

Grant Award Details

Stimulating endogenous muscle stem cells to counter muscle atrophy

Grant Type: Quest - Discovery Stage Research Projects

Grant Number: DISC2-10604

Project Objective: Stimulating endogenous muscle stem cells to counter muscle atrophy

Investigator:

Name:	Helen Blau
Institution:	Stanford University
Type:	PI

Award Value: $2,198,687

Status: Pre-Active

Grant Application Details

Application Title: Stimulating endogenous muscle stem cells to counter muscle atrophy

Public Abstract:

Research Objective

Intramuscular delivery of two repurposed FDA approved drugs will activate resident muscle stem cells. This therapeutic strategy will augment regeneration and restore strength to atrophied muscles.

Impact

Currently effective treatments are lacking for localized muscle atrophy due to nerve injury (eg., Carpal Tunnel Syndrome) or immobilization after trauma or surgery (eg., hip or knee replacement).

Major Proposed Activities

- To establish the optimal dose of the formulation based on the stem cell proliferative response and safety profile
- To establish biomarkers for efficacy of the formulation in muscle regeneration
- To establish the non-invasive biometrics for functional outcome of intramuscular treatment
- To assess long-term effects of drug treatment on aged muscle regeneration
- To address regenerative response of the drug treatment in aged denervation muscle atrophy model
- To evaluate the efficacy of the drug treatment on human muscle xenograft

Statement of Benefit to California:

Our therapeutic strategy stands to revolutionize treatment of muscle atrophy. Muscle wasting is a highly debilitating condition that impacts quality of life and productivity with an incidence that increases with aging. In particular, Carpal Tunnel Syndrome, a work related injury, impedes use of the hand with economic consequences. As California is the most populous state, with an ever-increasing elderly population, it will benefit from strategies that increase mobility of this demographic.

Source URL: https://www.cirm.ca.gov/our-progress/awards/stimulating-endogenous-muscle-stem-cells-counter-muscle-atrophy